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Enlisted Military Selection:  
Impacts of Changing Aptitude Standards Since 1940<sup>1,2</sup>

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Uncle Sam wanted "you" in 1940 if you had the ability to comprehend simple orders given in the English language. Today, considerably greater evidence of training aptitude is required of military applicants. Mental standards for entry into the Military Services have become more stringent, or at least more sophisticated, over the past four decades.

Since World War II, military technology (e.g., weapons systems) has become increasingly complex and, as a result, greater mental and educational demands have been placed upon enlisted personnel. The ~~Navy for example, cannot rely solely on bravado~~ to fulfill its mission. ~~whether it needs technical specialists to man nuclear powered ships, to maintain aircraft, and to operate radar devices.~~ The demand for personnel quality, above and beyond basic literacy, has prompted the Services to employ ~~the~~ capacity for efficiently absorbing training and becoming effective soldiers, sailors, marines, or airmen.

Currently, the Army will let you "be all you can be", the Navy will let you "see the world", the Marine Corps will consider you to be one of the "few good men", and the Air Force will let you "fly with them" if you meet their particular mental requirements based upon aptitude test scores in conjunction with educational status. Each Service designates minimum acceptable Armed Forces Qualification Test (AFQT) scores and (with the exception of the Navy) specific Armed Services Vocational Aptitude Battery (ASVAB) aptitude area scores separately for high school graduates and non-graduates wishing to enlist.

Although aptitude standards for entry into the Armed Services are much higher today than they were before World War II, they have not increased monotonically since that time. Selection criteria for induction and enlistment into the military have been adjusted many times since 1940 in response to a number of factors, in addition to the military's technological demands. Factors both internal and external to the military (e.g., manpower requirements and national economic conditions) have at times necessitated temporary "lowerings" or enabled the raising of aptitude requirements for military service.

>The present report historically tracks the changes in minimum aptitude qualifications for military service and discusses some of the factors accompanying such changes. Standards have changed in the past and they are likely to change in the future. An historical track of the shifts in minimum qualifications may enable manpower analysts to recognize the conditions which may lead to lower or more complex aptitude standards.

Definitions of Standards and Quality

Selection standards are the criteria below which individuals may not be accepted for induction or enlistment into a Military Service. The basic purpose of such standards is to screen out potential enlisted personnel who are least likely to profit from training and who might be actual liabilities to the Services.

Beginning in 1946, entry aptitude standards were expressed in terms of minimum scores on standardized tests in addition to the previous literacy requirements. Since the mid 1960s, standards have differed according to educational attainment. That is, minimum qualifying scores are used in conjunction with educational level to determine whether an examinee is eligible to serve in the Armed Forces. Today, for example, non-high school graduates and GED recipients are required to achieve higher scores on the AFQT than high school graduates to be considered for military duty.

Under varying DoD limitations, the individual Services, due to their unique missions, technical requirements, and recruiting market experience, set the standards below which individuals are not eligible to enlist. Meeting Service minimum standards, however, does not guarantee entry into the military. From time to time, the Services set higher quality goals and temporarily adjust applicant qualification requirements through more selective operational "cutting scores." These are a less definable set of decision rules which operate on a daily basis to regulate the flow of lower quality personnel.

The Services prefer "high quality" personnel. They seek to recruit and select as many high school graduates and persons scoring at or above average on the AFQT as manpower requirements demand and the labor market supplies. When there is a reduction in numerical requirements and/or when the recruiting market shows ample supply of top quality applicants, these higher "cutting scores" operate to select the best from the applicant pool. While lower quality personnel do enter the system, their numbers are greatly reduced. As is common in civilian hiring practices, military recruitment procedures move toward groups previously excluded or numerically limited (by policy) in a tightening market and either qualify individuals nearer the existing minimum standards or adjust the standards downward under extreme conditions (e.g., war).

<sup>1</sup>This paper is an abbreviated version of a forthcoming technical report for the Office of Naval Research.

<sup>2</sup>Paper presented at the 24th Annual Meeting of the Military Testing Association, San Antonio, TX: November 1982.

The recruiting market of the past fiscal year (1982) was one in which all four Services could afford to be choosy in selecting recruits. Informal enlistment standards operated at a relatively high level and good quality among accessions resulted. A recruiting boom such as this will not last forever. In the past, quality has often been the first to suffer in an unfavorable selection environment. Perhaps it is possible to learn our lessons from the past and prepare for a decline in the number of military applicants without incurring the risks involved in an extreme reduction in the proportion of well qualified personnel.

#### Simplifying Complexity: A Model of Factors Influencing the Selection Process

Service enlistment policies and hence the quality of military accessions depend upon the interplay of environmental factors, both internal and external to the military. Figure 1 shows some of the many factors which influence Service minimum and operational selection standards and the quality mix of accessions.

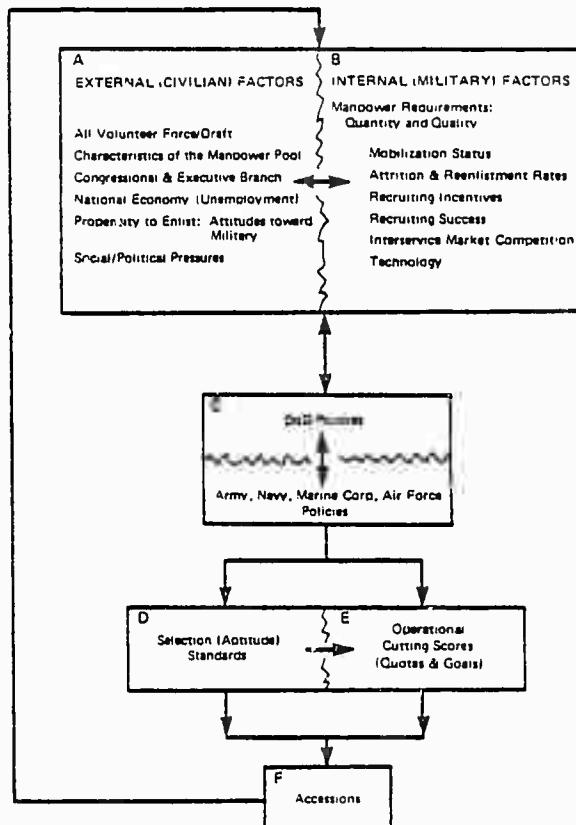


Figure 1. HumRRO Model of Factors Influencing Selection Aptitude Standards and Characteristics of Accessions

The military selection process, while at all times trying to maximize quality, operates within the context of external (i.e., civilian) constraints, examples of which appear in Box A of Figure 1. These factors are briefly delineated below.

- All-Volunteer Force/Draft - National policy on the establishment of an AVF as opposed to compulsory service has the greatest effect, of any single factor, on the quality of examinees and required recruiting resources to meet strength objectives.
- Characteristics of the Manpower Pool - The military draws its recruits primarily from civilian male youth ages 18 to 23. The number and aptitude levels of such youth, for example, are major recruiting market considerations.
- Congressional & Executive Branch Activities - Congress and/or the executive branch may place legal and/or policy constraints on military service selection.
- Defense Budget Appropriations - The level of funding and programmatic decisions in the defense budget process directly affect manpower programs.
- National Economy (Unemployment) - There is direct correspondence between the youth unemployment rate and the quantity of military applicants. Operational cutting scores can be adjusted so as to produce a large proportion of top quality military accessions.
- Propensity to Enlist: Attitudes Toward Military - Favorable attitudes toward the military in general and towards specific Services greatly affect the likelihood that an individual will enlist.

- Social/Political Pressures - Generally, equal opportunity considerations come into play here (e.g., utilization of women and minority representation). An example is pressure to involve the military institution in social rehabilitation for the underskilled and under-educated. Standards and/or cutting scores may be adjusted downward to accommodate such pressures.

These external factors effect and in turn are affected by factors within the military. As depicted in Box B, and elaborated on below, these internal factors generally are related to or subsumed under military manpower requirements.

- Mobilization Status - Force strength objectives are primarily driven by war/peace preparations. During wartime mobilizations, for example, standards may be lowered to qualify more men in the face of drains on available manpower.
- Attrition & Reenlistment Rates - The number and type of recruits needed tomorrow are direct functions of the retention behaviors of the enlisted personnel of today.
- Recruiting Incentives - Enlistment bonuses, educational benefits, and assignment options can affect the attractiveness of a military Service to potential recruits.
- Recruiting Success - Tomorrow's recruiting goals are an inverse function of today's recruiting outcomes.
- Interservice Market Competition - The relative attractiveness of one Service to potential recruits impacts upon the quality of personnel available to the other Services. For example, the perceived desirability of the Air Force negatively impacts the number of high quality Army applicants.
- Technology - As military weapons systems become more complex the need for well qualified recruits to operate them increases.

Although these factors have been discussed separately, they interact to effect DoD and individual Service policies (Box C) in setting selection aptitude standards and operational cutting scores (Boxes D & E) which, in turn, determine the quantity and quality of military accessions (Box F). Finally, as shown by the feedback loop from Box F to A, the accessions which result from the complex selection process have an impact on the external and internal driving factors. For example, the high levels of youth unemployment in FY 1982 are assumed to have increased the propensity of large segments of the manpower pool to enlist. With ample supply, all Services--through operational cutting scores--achieved a large percentage of quality accessions (e.g., high school diploma graduates and/or AFQT scores at or above the 50th percentile). In response to such recruiting success, the Senate Appropriations Committee recently cut FY 1983 Defense personnel funds including recruiting incentives. No doubt the feeling was that with applicants banging on the Services' doors and quality accessions coming in, recruiting incentives would be unnecessary or at least a low priority item. Furthermore, Congress has set a 20 percent ceiling on below average personnel and has limited non-high school graduates to 25 percent in FY 1983. Such budget cuts and quality objectives are fine so long as other environmental factors such as high unemployment and low force requirements continue to positively affect accession quantity and quality. Rhetorically we may ask--what will happen to quality if numerical requirements increase sharply and/or the civilian labor force is not crippled by high unemployment? If it is true that history repeats itself, it is to history that we turn for the answer.

The selection process is a complex multivariate personnel management system. Although it is convenient to discuss environmental factors in isolation, they act as a unit. Despite this caveat, the present authors opt for convenience and primarily focus on mobilization status and youth unemployment rates in relation to changes in applicant qualification requirements and accession quality.

#### Response to War: Induction & Enlistment Standards During the Draft Years

Many changes in selection policies occurred during the draft period from 1940 to 1973. Mental standards for induction and enlistment varied mostly in response to the quantitative demands posed by World War II, the Korean Conflict, the Berlin Crisis, and the Vietnam War.

During most of the draft years, two sets of standards existed: one for inductees and generally a higher set for enlistees. Inductee standards were lower and tours of duty shorter for reasons of equity. All except the most untrainable must be eligible and accepted since the Selective Service could not justify picking only the cream of the crop to bear the brunt of compulsory service. Although the draft brought in many high aptitude personnel, it brought in marginal performers as well: therefore, shorter tours helped to prevent compromising the quality of future careerists and/or noncommissioned officers. Since it is to volunteers that the Services turn to first, even in times of war, draftees were used only to supplement the forces, particularly the Army with its large manpower demands and often inadequate market.

In times of war or national emergency, and to a lesser extent during peacetime recruiting shortages, the Army found it necessary to shift from qualitative considerations to quantitative demands. With each mobilization or manpower build-up, enlistment and induction standards were lowered to increase the size of the pool. Standards barring the induction of those with less than a fourth grade reading capacity at the initial phase of the World War II mobilization, for example, quickly proved too stringent. Concern over possible manpower shortages coupled with pressure from Southern Congressmen--whose constituents were being rejected at high rates--paved the way for a 10% illiterate quota system in August of 1942 (Wool, 1968). This was the Army's first experience of sacrificing quality for quantity.

The Navy's smaller manpower demands enabled it to avoid using inductees until 1943 when the Selective Service became the sole procurement agency and distributed illiterates to the Navy as well. From this time on, all Services were to be affected by the Army's quantity needs and quality problems, particularly in war.

Following the war (1946), reliance on the draft was reduced and higher peacetime enlistment standards prevailed. In order to forestall Army and Marine Corps manpower shortages under predominantly volunteer recruitment, the Selective Service Act of 1948 enabled the draft to become a peacetime procurement tool. This act established by law--for the first time--a specific minimum mental standard for induction which was higher than the World War II standard. Inductees were to be accepted if they achieved a standard score of 70 or better on the Army General Classification Test, corresponding to a percentile score of 13 on the AFQT. Even though the Army and Marine Corps needed the help of the draft, the standard was not set extraordinarily low, for they did not need "too much help" at this time.

In 1951, however, under the Universal Military Training and Service Act the minimum mental induction standard was lowered to the 10th percentile on the AFQT. This action was taken by Congress to broaden the manpower pool in light of the demands of the Korean Conflict. As in World War II the Army was the primary user of inductees and was saddled with a disproportionate amount of low aptitude personnel in comparison to the other Services.

To avoid a concentration of low quality personnel in the Army, DoD adopted a qualitative distribution policy from 1951 through 1958. This policy set all enlistment standards at the same level as inductees and required that each Service accept a specific percentage (quota) of personnel in mental categories I through IV. The quotas for low aptitude personnel (Mental Category IV) ranged from 27 percent to 12 percent of nonprior service accessions.

With strengths reduced following the Korean hostilities, the DoD imposed quotas were reduced and finally suspended in 1958. Not only were enlistment standards raised but in July of 1958 Congress authorized modifications to induction standards except in time of war or national emergency. This year marks the first time that supplemental aptitude tests were used along with AFQT criteria for screening inductees and enlistees, especially those scoring in the lowest acceptable aptitude category (i.e., Category IV - AFQT 10-30).

The period between 1958 and 1965 was a peacetime period somewhat disturbed by the Cold War and the Berlin Crisis (1962). Enlistment standards were set unilaterally by Service and generally ranged between AFQT 21 and 31 with varying supplemental test requirements. Between 1958 and 1963 induction standards required an AFQT 31 or AFQT 10-30 and standard scores of at least 90 in two or more Army Classification Battery aptitude composites. Those who failed were deferred from peacetime Service. In 1963 standards were raised further by adding a General Technical composite requirement of at least 80 for those in AFQT Category IV.

In November of 1965 Army and Marine Corps enlistee standards were set by DoD at approximately the same level as for inductees to assure a maximum input of volunteer enlistments (United States Congress, 1966). Previous supplementary aptitude test requirements were waived, for example, in the case of high school graduates with AFQT scores between 16 and 30. Two reasons can account for such a reduction in standards. First, volunteer enlistments may have been down in these two Services because of the sizable reduction in the national unemployment rate among males ages 18 to 24. In 1964 the rate was 9.7 while in 1965 it was only 8.1. Even more plausible, however, was the approaching U.S. involvement in Vietnam.

Table 1

Comparison of October 1965 and June 1966  
Service Enlistment Aptitude Standards

	October 1965 (Pre-Vietnam)			June 1966 (During Vietnam)		
	AFQT	Aptitude tests	Education	AFQT	Aptitude tests	Education
Army-----	31 21-30	AQB-3-----	High school graduate	31 16-30 16-30	AQB-2-----	-----
Navy-----	31 21-30	-----	High school graduate	31 16-30 21-30	GT-80 plus 2 other AQB.	High School graduate
Quota-----	(a)	(a)	(a)	(b)	(b)	(b)
Marine Corps---	31 21-30	AQB-3-----	-----	31 16-30 16-30	AQB-2-----	High School graduate
Air Force-----	AFQT-31---	1 area out of 4 in Air Force test, at percentile score of 40+	High school graduate preference.	(c)	(c)	(c)
	21-30	-----	High school graduate	-----	-----	-----

<sup>a</sup>12-percent group IV ceiling.

<sup>b</sup>5-percent group IV ceiling.

<sup>c</sup>No change.

Since Vietnam was never officially declared a war or even a national emergency, induction standards were not reduced to an AFQT of 10 which Congress called for under such conditions. Despite what Vietnam was called, numerical requirements increased and enlistment and induction standards were lowered. Table 1 compares the enlistment standards in effect just prior to the Vietnam build-up (October 1965) and those which operated in the midst of our involvement.

With the advent of the Vietnam war, test score and educational standards were lowered four times and DoD imposed quotas to accommodate the Army's numerical requirements and the fortuitous social program--Project 100,000. This program, as part of the President's War on Poverty, admitted low aptitude and previously rejected personnel into the military in order that they might learn useful skills. The goal was to admit 100,000 of these "New Standards Men" into the military annually. In addition to this general goal DoD established Category IV quotas ranging from 25 percent of Army accession to 15 percent of Air Force accessions. At least 50 percent of the Category IV quotas was to be met with "New Standards Men"; thus, men scoring in the AFQT range of 10 to 15 were brought into all Services. Towards the end of the Vietnam War, draft calls were reduced, Project 100,000 ended and standards were raised as plans for an all-volunteer force got underway.

Throughout the draft period the military's mobilization status and force strength requirements affected enlistment and induction standards. Although the specific standards varied, the pattern was essentially the same: with each manpower build up for war, standards were lowered and reliance on inductions increased to yield more accessions. Standards could be raised with the draft still operating to forestall Army and Marine Corps shortages. Although the Navy and Air Force had little trouble obtaining volunteers, (particularly with the draft stimulating enlistments), and could have maintained higher standards, DoD imposed quotas and lowered their standards so that the Army would not be saddled with all the low quality personnel. Generally, from 1940 to 1973, standards were affected by factors and policies internal to the military while external factors played more of a role once the draft ended.

#### Quality Objectives in an All-Volunteer Environment

The years 1972 and 1973 are known as the transition period to the All-Volunteer Force (AVF). With declining draft pressure and abolition of DoD quotas, the Services began to shift their entry standards and settings on Category IV and non-high school graduate personnel in order to find the best quality mix that their individual markets would support (Lee & Parker, 1977). In their efforts to maximize quality during this time when the market was changing, the Army, Navy, and Marine Corps sometimes experienced recruiting shortfalls. Quality objectives were then lowered and standards adjusted in response to shortfalls. The Air Force set relatively high standards and were able to maintain them and even flourish under the free market of the AVF due to its more favorable image, adequate supply, and lower numerical requirements than the Army and Navy.

With the draft gone as a peacetime procurement tool, the Services could no longer afford to set standards and objectives unrealistically high since inductees and draft motivated enlistees were no longer available to fall back on. Through trial and error standards were set in light of manpower availability as well as quality demands. Early in 1973 the Marine Corps, for example, required a General Technical (GT) composite score of at least 80 and standard scores of 90 on two additional aptitude composites for all applicants with AFQT scores between 21 and 49. In order to increase supply, all composite requirements were dropped for high school graduates. In addition, GT requirements were later dropped for non-graduates scoring between AFQT 31 and 49 and graduates scoring between the 21st and 30th AFQT percentiles.

Table 2

1982 Male Non-Prior Service Enlistment Aptitude Standards  
(Required Operational Score on ASVAB 8 - 10) by  
Educational Level

Service/Education	MINIMUM STANDARDS	
	AFQT Percentile Score	Aptitude Composite Standard/Percentile Score
<b>ARMY</b>		
H.S. Diploma Graduate	16	35 on Any 1
GED	31	85 on Any 1
Non-H.S. Graduate	31	35 on Any 2
<b>NAVY</b>		
H.S. Diploma Graduate	17	0
GED or CPT	31	0
Non-H.S. Graduate	38	0
<b>MARINE CORPS</b>		
H.S. Diploma Graduate	21	GT-C=80
Non-H.S. Graduate (Including GED)	31	GT-C=100
<b>AIR FORCE</b>		
H.S. Diploma Graduate	21	GT=30; MAGC=120
GED	50	GT=30; MAGC=120
Non-H.S. Graduate	65	GT=30; MAGC=120

<sup>a</sup>Minimum composite scores are expressed in terms of standard scores for the Army, Navy, and Marine Corps. Percentile scores are used in the Air Force.

<sup>b</sup>No minimum requirements for enlistment.

<sup>c</sup>General-Technical ASVAB Composite.

<sup>d</sup>General ASVAB Composite.

<sup>e</sup>Mechanical, Administrative, General, & Electronics ASVAB Composites.

Toward the late 1970s minimum AFV enlistment standards were set at levels which were practical for each service. With minor adjustments along the way, minimum standards evolved into those of today. As shown in Table 2, each service has a unique set of minimum AFQT and aptitude composite standards. For all Services, these requirements are more stringent for non-high school graduates and GED recipients (because of their higher first term attrition rate) than they are for high school diploma graduates.

While minimum standards do not preclude the enlistment of Category IV or non-high school graduate personnel, they are the least preferred group of accessions. Good quality, on the other hand, is generally defined as high school diploma graduates scoring in AFQT categories I-III A (i.e. AFQT 50 through 99). When market conditions are favorable, the Services often set operational cutting scores and quality objectives at levels higher than the minimum standards, thus pursuing the more desirable candidates. Environmental factors external to the military have played an increasing role in the military selection process since the inception of the AFV. There is a strong indication, for example, of an inverse relationship between the nation's overall economic health and the ability to attract an adequate number of well-qualified youth into Service (Toomepuu, 1981; Philpott, 1982). When youth unemployment is low and competition with the private sector is fierce, the Service recruiters tend to enlist individuals as they apply, thus bringing in more individuals who score closer to the minimum standards. When unemployment is high the Services are afforded the luxury of choice and can enlist more preferred quality personnel. Although it is difficult to state what the actual cutting scores are for each branch, it is possible to see their effect on the quality of accessions.

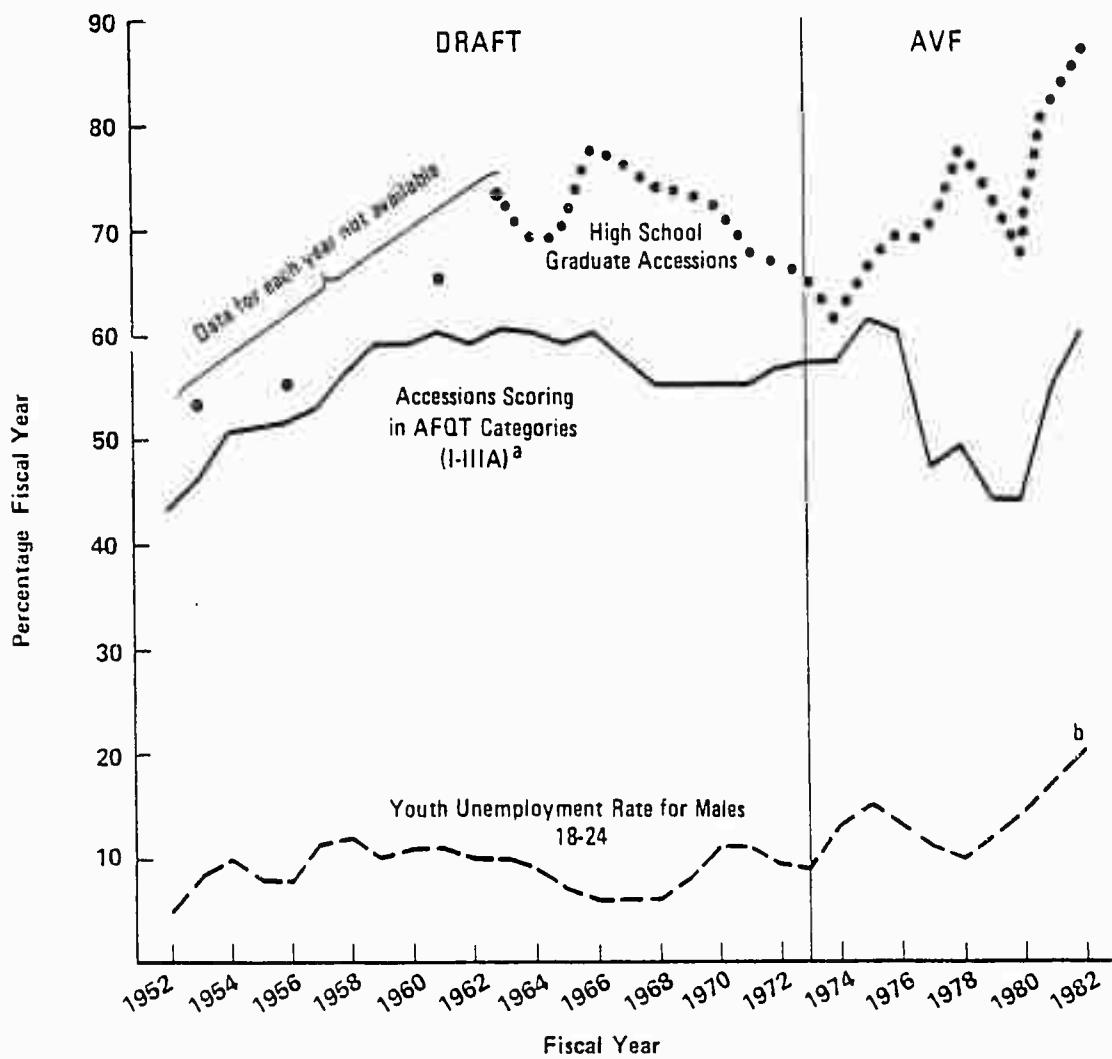


Figure 2. Quality of Male Non-Prior Service Accessions, as Measured by AFQT Categories I-III A and High School Graduation, in relation to the Unemployment Rate For Male Youth Ages 18-24. (Total DoD, Fiscal Years 1952 through 1982)

a. Categories I-III A correspond to scores at or above the 50th percentile on AFQT.

b. The Youth Unemployment Rate was calculated from data provided by the Bureau of Labor Statistics, Current Population Survey.

Figure 2 tracks the quality of accessions and youth unemployment rates from fiscal year 1952 through 1982. While there is no discernable pattern between quality and civilian unemployment during the draft period, a clear relationship does exist under the AVF. Quality shifted prior to 1973 mostly in response to force strength requirements. Between 1966 and 1971, for example, requirements for Vietnam and Project 100,000 led to a decrease in the percentage of above average AFQT and high school graduate accessions. Economic conditions appear to be irrelevant until the AVF was firmly established. Since then the Services have been playing the manpower market--maximizing their intake of Category I-IIAs and high school graduates when unemployment rates rise. From these fluctuations in quality one can assume that the Services have been flexible in their application of minimum enlistment aptitude standards, adjusting them upward when conditions permit. In trading off quality for quantity, it appears from the AVF side of Figure 2 that aptitude level is sacrificed before education. Under unfavorable market conditions the Services continue to pursue high school graduates, but increase supply by enlisting them with scores close to, or at, the minimum standards.

#### Report Implications

While recognizing the complexity of the military personnel procurement process, this report has indicated that environmental events must be considered in setting aptitude selection requirements. Events both internal and external to the military act as warning signs which may lead to a change in selection standards and daily recruit quality objectives. If we assume that the All-Volunteer Force will continue to operate in the future then external factors, such as the unemployment rate, will continue to have a strong impact upon the quality of accessions.

The time is ripe for evaluating enlistment standards and quality objectives. Chances are, unemployment rates will descend in the near future. Recent history has shown us that with active competition from the civilian labor market, the Services (particularly the Army) will tend to experience recruiting shortages and react by lowering operational cutting scores. The current high cutting scores and accession quality may be affected by other factors as well.

In addition to the negative impact of expected lower unemployment rates, recruit supply may suffer from a decline in the size of the prime manpower pool (i.e. male youth ages 18-23). Although technological advances will continue along with preferences for recruits who are high school graduates in AFQT Categories I to IIIA, the Services may be forced to select at their minimum standards. Depending upon the severity of the supply-demand ratio, it is possible that minimum standards might also be affected. DoD is making some preparations through its investigations of less preferred segments of the manpower pool such as non-high school graduates.

Finally there is one more implication offered. From the many standards and cutting score changes, it appears that the "quality" sought is a function of the "quality" available. Minimum standards are based, to a large extent, on Service preferences, market conditions, and training ease. With the present efforts by the Services and DoD to link aptitude standards to actual job performance we may indeed be headed towards a change in standards. Hopefully research efforts may reduce "demands" and pave the way to more efficient utilization of the personnel that are able to be recruited.

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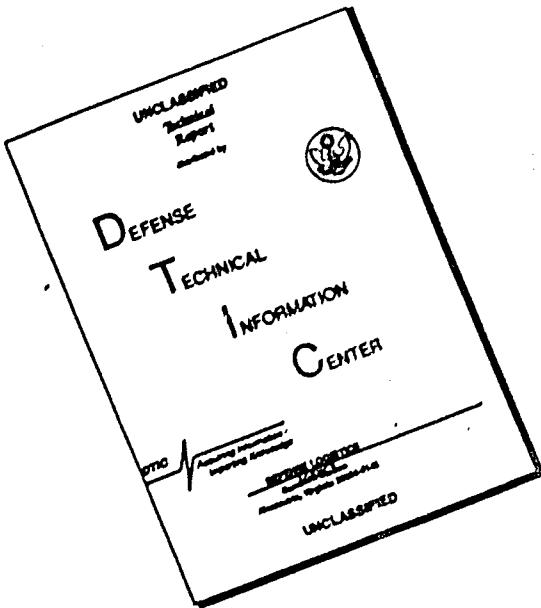
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